CONTENTS OF VOLUME 173

(The first of three Congress Volumes)

Changes in structural parameters with conformational changes and the determination of conformational stabilities by molecular spectroscopic techniques
J. R. Durig, P. Groner and J. F. Sullivan (Columbia, SC, U.S.A.) 1

Molecular structure by two-dimensional NMR spectroscopy
R. Freeman (Cambridge, Gt. Britain) 17

Optimization of gas phase reactions using real-time PES analysis: short-lived molecules and heterogeneously catalyzed processes
H. Bock, B. Solouki, S. Aygen, M. Bankmann, O. Breuer, R. Dammel, J. Dörr, M. Haun, T. Hirabayashi, D. Jaculi, J. Mintzer, S. Mohmand, H. Müller, P. Rosmus, B. Roth, J. Wittmann and H.-P. Wolf (Frankfurt, F.R.G.) 31

Infrared spectroscopy of excited states and transients in photochemistry
K. Schaffner and F.-W. Grevels (Mülheim a.d. Ruhr, F.R.G.) 51

Time-resolved resonance Raman studies of photoisomerization and photoredox reactions in solution
R. E. Hester (York, Gt. Britain) 67

Applications of ultraviolet resonance Raman spectroscopy to proteins
T. G. Spiro and C. A. Grygon (Princeton, NJ, U.S.A.) 79

Interconversion of conformers by infrared radiation: a theoretical approach based on symmetry of nonrigid molecules
H. H. Guenthard (Zurich, Switzerland) 91

FTIR Spectra of base — HF complexes in noble gas matrices
L. Andrews (Charlottesville, VA, U.S.A.) 103

Computations in vibrational intensity spectroscopy
B. Galabov, T. Dudev (Sofia, Bulgaria), J. R. Durig (Columbia, SC, U.S.A.) and W. J. Orville-Thomas (Salford, Gt. Britain) 111

Photothermal and photoacoustic spectroscopy
H. Coufali (San Jose, CA, U.S.A.) and J. F. McClelland (Ames, IA, U.S.A.) 129

Tunneling spectroscopy
B. J. Nelissen and H. van Kempen (Nijmegen, The Netherlands) 141

Symmetry rules in chemisorption
R. A. van Santen (Amsterdam, The Netherlands) 157

Vibrational and rotational contribution to IR and Raman bands of uniaxially aligned systems
N. Kirov, I. Dozov (Sofia, Bulgaria), B. Rosi and M. P. Fontana (Parma, Italy) 173

Excited state distortions and their spectroscopic consequences in transition metal compounds
D. M. Preston, K.-S. Shin, G. Hollingsworth and J. I. Zink (Los Angeles, CA, U.S.A.) 185

High resolution laser spectroscopy as a tool to investigate dynamics in large molecules and molecular clusters
W. L. Meerts and W. M. van Herpen (Nijmegen, The Netherlands) 201

Absolute photoionisation cross sections of transient species
C. A. de Lange, P. van der Meulen and W. J. van der Meer (Amsterdam, The Netherlands) 215

Tunneling and shape resonance phenomena in the UV photoelectron spectra of HF and DF
C. A. de Lange, H. J. Bakker and O. Grabandt (Amsterdam, The Netherlands) 221

HeI Photoelectron spectroscopy of organic and inorganic transient and semistable molecules
N. P. C. Westwood (Guelph, Ont., Canada) 227

Flash photolysis electron spin resonance
K. A. McLauchlan (Oxford, Gt. Britain) 237

Electron Spin Echo spectroscopy of the photo-excited triplet state of pyridine
J. Schmidt, W. J. Buma, E. J. J. Groenen (Leiden, The Netherlands) and R. de Beer (Delft, The Netherlands) 249

New aspects in force field calculations
J. Mink (Budapest, Hungary) 253

Molecular spectroscopy and dynamics of core and valence excited states by electron scattering and synchrotron radiation
I. Nenner, P. Morin (Orsay, France and Gif S/Yvette, France), M. J. Hubin-Franskin, J. Delwiche (Orsay, France and Liège, Belgium) and S. Bodeur (Orsay, France and Paris, France) 269

Fourier transform methods for spectral resolution enhancement
H. H. Mantsch, D. J. Moffatt and H. L. Casal (Ottawa, Canada) 285

Determination of biomolecular structures from proton-proton NOE'S using a relaxation matrix approach
R. Boelens, T. M. G. Koning and R. Kaptein (Utrecht, The Netherlands) 299

Gas-phase UV photoelectron spectra and DV-Xα calculations of bridged organometallic dimers
G. Granozzi (Padova, Italy) 313

A search for pure compounds suitable for use as matrix in spectroscopic studies of radiation-produced radical cations. III. A selection of compounds based on the thermochemistry of hydrogen and proton transfer reactions between neutral molecules and their cations
A. van den Bosch and J. Ceulemans (Leuven, Belgium) 329

Matrix isolation infrared spectrum and ab initio calculations of the boron trifluoride dimer. Tentative assignments
F. M. M. O'Neill, G. A. Yeo and T. A. Ford (Johannesburg, S. Africa) 337

Matrix-isolation IR studies on the basic interaction sites in esters and thiolesters towards proton donors
G. Maes, A. Smolders, P. Vandevyvere, L. Vanderheyden and Th. Zeegers-Huyskens (Heverlee, Belgium) 349

Interpretation of infrared intensities. I. Mass-weighted squared effective charges
W. B. Person and K.-H. KuBulat (Gainesville, FL, U.S.A.) 357

Combining surface enhanced Raman scattering (SERS) and high-performance thin-layer chromatography (HPTLC)
E. Koglin (Juelich, F.R.G.) 369

Picosecond spectroscopy of polymethine dyes
D. Fassler and K.-H. Feller (Jena, G.D.R.) 377

Conformational behaviour of five cyclobutane derivatives
D. L. Powell, A. Gatial, P. Klaeboe, C. J. Nielsen (Oslo, Norway) and A. J. Kondow (Wooster, OH, U.S.A.) 389

EPR-Study of $ThBr_4:Pa^{4+}$ in the incommensurable phase
G. Zwanenburg, C. P. Keijzers, E. de Boer (Nijmegen, The Netherlands) and J. C. Krupa (Orsay, France) 397

Reflection absorption infrared spectroscopy of adsorbates on metal single crystal surfaces
M. A. Chesters (Norwich, Gt. Britain) 405

Author index 419

Subject index 421